

Hobbies

WEEKLY

Sempster

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A Handyman can make this useful garden METAL WHEELBARROW

EVERYONE with a garden needs a wheelbarrow at some time or other. The expense of buying one may seriously affect the household budget, so the easiest way to get over the difficulty is to make one yourself. Wooden wheelbarrows are out of the question these days; they are heavy and the right kind of timber is almost impossible to get.

The modern wheelbarrow is made of metal and this article describes in non-technical language how to make it. Anyone not used to working in metals need not be afraid to tackle this job, as it is all so simple if the following instructions are carefully carried out.

Tools and Materials

The only tools required are those usually found in any ordinary home workshop, comprising a hacksaw, wheelbrace and drills, tinsmith's snips, a vice, hammer, cold chisels and spanners. The list of the materials that will be required is given in the panel here-with.

The materials specified can, of course, be modified to suit the supply situation. For instance, if tube is hard to get, flat iron can be used in places as a substitute. Any suitable type of wheel can be used and the size need not be as stated, providing sufficient space is left for it when constructing the frame. The wheel bearing blocks are fitted so the wheel can be taken out any time without taking the barrow to pieces.

As will be seen from the list of materials, the framework is made from

tubing. The two main side members are 1in. diameter, electrical conduit tubing being quite strong enough. An easy method of bending the two pieces, is to drill an 1½in. diameter hole in a hefty piece of timber such as an old railway sleeper. Place the tube through the hole up to the first bend, and lever on the tube to obtain the correct shape.

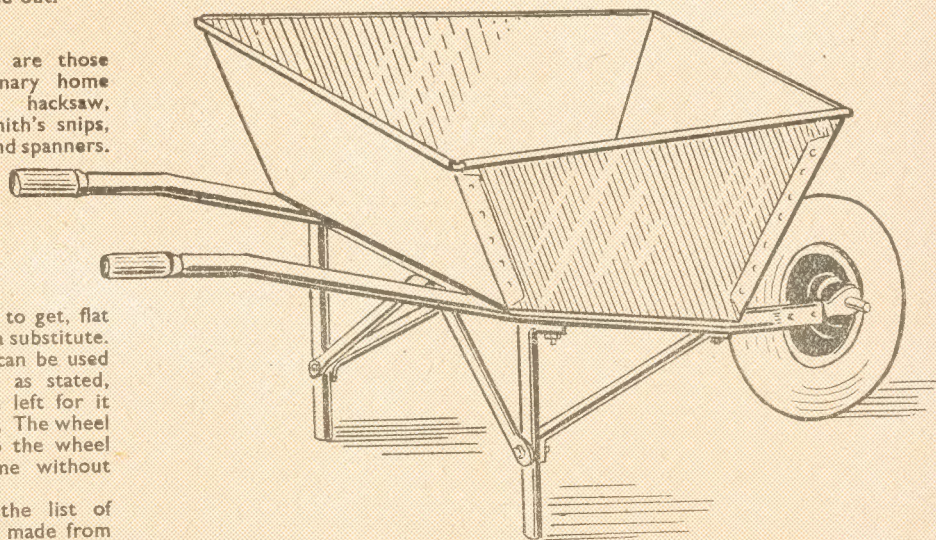
Each piece is bent in four places as shown on the drawing. No fixed dimensions are given for the bends, as these can be made to suit the individual and the type of wheel used. It will, of course, be necessary to have the two 24in. straight portions to take the body. The wheel ends are flattened to ac-

commodate the wheel bearings, which are drilled in position for the 1½in. diameter fixing bolts.

All the other tubing which makes up the framework, is ½in. diameter. The pieces are sawn to length, flattened at the ends where necessary, drilled ½in. clearance and the ends bent as shown in the drawings. It will be noticed that the pieces are in pairs with the exception of the two body cross pieces.

Making the Body

The body is made from 20 S.W.G. galvanized sheet steel, which can be bought from most of the larger town ironmongers. The top edges are



All correspondence should be addressed to The Editor, Hobbies Weekly, Dereham, Norfolk.

strengthened with $\frac{3}{16}$ in. galvanized wire. Mark out the 3ft. by 2ft. piece which is to form the bottom and sides, and cut to shape with tinsmith's snips. The dotted lines on the drawings show where the bends are made to form the shape of the bottom and to take the $\frac{3}{16}$ in. wire. The edge bends on all the three pieces should be made $\frac{1}{2}$ in. from the edge.

MATERIALS

Flat galvanized steel, 20 S.W.G.—
One sheet—3ft. by 2ft.
One sheet—2ft. by 2ft.
Conduit tubing—
1 in. diameter, 2 lengths—4ft. 3 ins.
1 in. diameter, 2 lengths—1ft. 6 ins.
1 in. diameter, 1 length—1ft. 5 ins.
1 in. diameter, 2 lengths—1ft. 4 ins.
1 in. diameter, 2 lengths—1ft. 1 in.
1 in. diameter, 1 length—1 in.
Wheel—1ft. 4 ins. diameter
Steel for wheel bearings—
2 pieces—4 ins. by $\frac{1}{2}$ in. by $\frac{1}{2}$ in.
Rivets— $\frac{3}{16}$ in. by $\frac{1}{2}$ in.—36
Nuts and bolts—
 $\frac{1}{2}$ in. diameter, 1 in. long—4 off
 $\frac{1}{2}$ in. diameter, 1 $\frac{1}{2}$ in. long—7 off
Wire— $\frac{3}{16}$ in. diameter, galvanized, 7ft.
Cycle handle bar grips—one pair

The front and rear pieces are cut as shown, having $\frac{1}{2}$ in. square pieces cut from each corner. Before bending any of the pieces, drill the holes for the rivets. Mark out down the sides and along the bottom of the front and rear pieces and drill for the $\frac{3}{16}$ in. diameter rivets. The holes should be about .200 in. diameter, and should be spaced out as shown on the drawings.

Correct Positioning

These holes must match up with those in the 3ft. by 2ft. piece, and to ensure this, the two pieces should be placed in their respective positions on the 3ft. by 2ft. piece and the positions of the matching holes marked with a scriber.

The top edges of all the pieces are then bent outwards to take the wire stiffener. If the pieces are placed in turn on a flat bench, the edges can be knocked up against a piece of hard wood chamfered

to $\frac{3}{16}$ in. on the edge. The bends should be left sufficiently open to allow the wire to be fitted later.

The Bends

The bends to form the bottom and sides can be made by placing the strip of wood along where the bend is to be made, standing on the wood and pulling up on the metal. The bends can be finished off with a mallet. Finally, make the bends for the lap joints, using the same strip of hardwood.

The next step is to rivet the pieces together. The overlaps are best on the outside. This leaves a clean interior which is better for cleaning and shoveling. It does not matter much where one

When all the rivets have been fitted the strengthening wire should be bent to shape. The ends are butt jointed and this should come on the side likely to get least strain, i.e., the side nearest the handles. Press the wire up into the top bent over edges and clinch it here and there with a pair of pliers. Finish off by knocking the metal round the wire with a mallet or light hammer, holding the work in suitable positions up to a wooden block on the bench.

Finishing

When the body is finished, place it in position on the frame to mark the bottom for the four fixing bolts. Drill four $\frac{1}{2}$ in. clearance holes and secure the

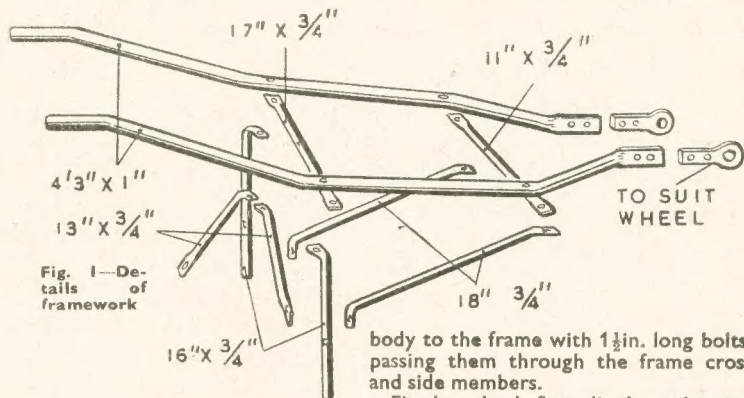


Fig. 1—Details of framework

starts riveting. If any of the holes do not match up after the first few rivets have been fitted, they should be opened out with the drill.

Make sure the rivets are not too long; they should protrude about $\frac{1}{8}$ in. before peening. Copper or brass rivets are most suitable as these are easy to work and quite strong enough. A solid object should be held against the head of each rivet as it is peened over. This can take the form of a hammer or a piece of round bar.

body to the frame with $1\frac{1}{2}$ in. long bolts, passing them through the frame cross and side members.

Fit the wheel, first slipping a bearing block (previously shaped and drilled to suit the wheel), over each end of the axle and push the blocks into the flattened ends of the side members. Make secure with four 1 in. long $\frac{1}{2}$ in. bolts and nuts.

All that remains is to fit the handle grips, a spot of oil on the axle, and the barrow is ready to use. The prototype from which this article was written has been in use for over ten years and is still capable of carrying loads of more than 1 cwt.

Fashions in Pastimes

HOW fashions change. Not so long ago spotting trains was all the vogue. Then came car numbers. Now it seems that empty cigarette packets are in big demand, and soon, no doubt, something different will be experiencing a boom.

It often happens that different pastimes are taken up just to be in the fashion, many of the new participants regarding them as a temporary sideline to their usual hobbies. There are, however, numbers of enthusiasts to whom these 'hobbies of the moment' are neither new nor temporary.

This wave in collecting cigarette packets, for instance. These cartons are so varied and interesting—and new designs occasionally appear—that they cannot have escaped the attention of serious collectors, and I imagine that some extensive first-collections could be produced by specialists in this line.

Their near relation, the match box, certainly has a good following. Phi-

lumenists (match box cover collectors) are sometimes also interested in the matches themselves, of which I was surprised to learn, there are as many as a hundred different varieties.

Novelties for Youngsters

WITH the aid of a camera one or two interesting presents can be made for the youngsters. The ideas mentioned here are not in any way elaborate, but it is often the case that simple home-made toys are the ones most appreciated.

One suggestion is to make a set of picture snap cards, say, about fifty cards on paper $3\frac{1}{2}$ in. by 2 $\frac{1}{2}$ in. or thereabouts. This is a convenient size to handle, and if desired they could be mounted on thin card to make them stronger, trimming it evenly. About a dozen pictures of different animals or scenes that can be quickly recognized should be chosen, and four or five duplicate prints made from each. The recipients will know how to play this old-established game.

Another idea, perhaps more difficult

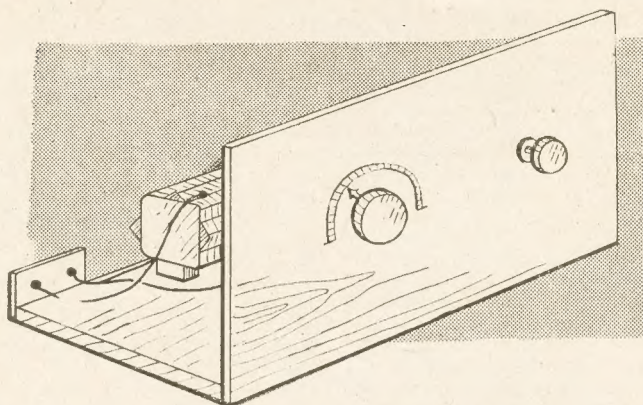
to make but worth trying if you have film to spare, is to take two or three dozen pictures of the youngster in slightly different attitudes, so the finished series is almost like a cinema film. Then make a print from each, but use a larger sheet of paper to leave an ample blank margin of 1 in. or more on the left.

Put all the prints in sequence, with flexible cover at top and bottom, and bind together with staples or thread at the left-hand edge. For quiet amusement such albums were quite popular with kiddies at one time. By flicking the pages quickly with the thumb they get the impression of movement in the photographs.

Then, of course, there are photographic jig-saw puzzles, made by gluing an enlargement to a piece of fretwood and cutting into small irregular pieces with the fretsaw. It may be preferable to cut two at a time, clamping the two boards firmly together with the pictures inside.

The Craftsman

The new type of detector is introduced into this BATTERYLESS RECEIVER



The Tuning Coil is wound in a manner which enables the clips to be attached easily, and is also very efficient. The turns are of bare tinned-copper wire, and the former is ribbed. Ready-made ribbed ebonite formers of suitable size may readily be purchased, or a former can be made up, as shown in Fig. 3.

The centre block of wood is 3ins. by 3ins. and about 8ins. long. The corners may be rounded slightly. Four triangular-shaped pieces are glued along, as shown. Those on the sides and top are the same length as the former, while the bottom strip is a little shorter so that two small blocks of wood may be used to mount the finished coil on the baseboard.

SMALL receivers that require no batteries or other power supplies to operate them are popular because they are cheap to build, cost nothing to run, and are always ready for use whenever required. The simplest receiver of this type is the crystal set, but by making use of one of the new types of detector developed during the war the inconveniences associated with crystal detectors can be overcome.

This receiver uses such a detector, which is sensitive and almost everlasting, and it is merely necessary to switch the set on, when required, instead of adjusting a cat's whisker or similar arrangement and searching for a sensitive spot on a crystal.

Results to Expect

In many areas an indoor aerial along two or more walls of the room near the ceiling will give ample volume and such an aerial may be of any thin insulated wire. With an outdoor aerial there will be additional signal pick-up and louder results will naturally be obtained, which is particularly desirable if more distant stations are to be received.

The very best type of aerial is one which is fairly long (say, 60ft. or so), as high as possible, and clear of surrounding buildings. With such an aerial the headphones should be heard operating quite clearly even if laid on the table, and tests show that after dark it is quite possible to receive continental stations at fair earphone strength.

Whatever type of aerial is used, an earth is desirable and its absence will severely reduce volume. The earth lead

should go to any metal object buried in damp soil outside the house. Proper metal spikes are obtainable, or wire-netting or disused metal containers or sheets of any kind can be used.

Selectivity Problems

The usual fault with receivers of this type is lack of selectivity (or sharpness) in tuning, which results in stations being received together. This has been overcome, and maximum volume assured, by making use of a tapped coil.

The usual lack of selectivity arises because of the damping imposed on the

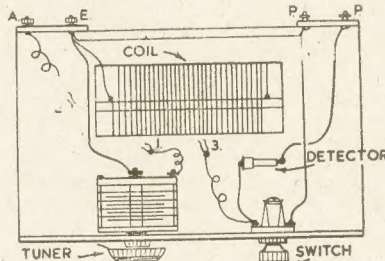


Fig. 2—Complete wiring diagram

tuned circuit by the aerial and detector, and this can be reduced by tapping either aerial or detector down the coil. This is done by means of the clips 2 and 3 shown in Figs. 1 and 2.

The nearer these clips are placed towards the earthed end of the coil the sharper does tuning become. Some loss of volume also arises, and, therefore, a compromise between selectivity and volume has to be made.

With a very long aerial clip 2 may be quite close the earthed end of the coil; a short aerial will allow more turns to be brought in, however. The settings of the clips are in no way critical and a few

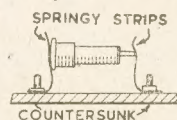


Fig. 4—The detector mounting

moment's spent in experimenting will immediately show how results are influenced.

Detector Mounting

The detector mentioned, known as the CV102, must not have leads soldered to it as the heating will reduce sensitivity. A small holder can be made from a piece of ebonite or other insulating material and two pieces of thin springy metal, as shown in Fig. 4. The small end of the detector may rest in a dent made in one strip by placing the metal on a wooden surface and giving a tap with a punch or large nail.

If the constructor has to hand a different type of detector there is no reason why this should not be made use of, if desired, though crystal detectors will have to be adjusted by hand.

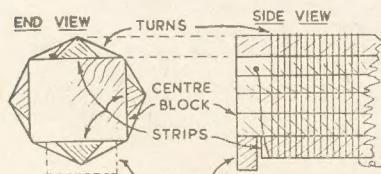


Fig. 3—Making the coil

An air-spaced tuning condenser is best, though a solid-dielectric one specially intended for tuning will also give very good results. A capacity of about .0005 mfd. is most suitable. The condenser may be fitted with a dial, knob with pointer, or so on according to the parts available.

Any small on-off switch is suitable. It should be noted that its function will be the reverse of what is usual. That is, when the switch is in the 'Off' position the receiver will be 'On', and vice versa. When the set is switched off no currents can flow in the detector or phones, but the set is ready for immediate use when the switch is operated.

Constructional Details

All connections are shown in Fig. 2 and no difficulty should arise. The clips are placed on small lengths of flex; they may be purchased from the popular stores, or devised from paper clips or scrap metal strips. The four terminals at the back are mounted on insulated strips and are for Aerial, Earth, and Phones.

A baseboard about 9ins. by 5ins. will

be of ample size, and a panel cut from 3-ply to similar dimensions is suitable.

The clips should go on the turns easily at a point where the latter are raised from the former.

Notes on Operation

To begin with, all the clips may be placed very near together near the right-hand end of the coil (Fig. 2). Upon tuning, stations should be heard, and the effect of moving the clips can then be noted.

As clip 2 is moved to the left along the coil tuning will become more sharp. (Re-tuning will be necessary as this clip is moved). Moving clip 3 to the left will also sharpen up tuning. Moving clip 1 to the left will decrease the minimum wavelength tuned. As a guide, about 70 or 80 turns will be required in circuit for most medium wave stations. The best position for clip 2 depends upon the aerial system and reception conditions.

Some short wave stations may be received when conditions are favourable if the clips are placed about 5 to 10 turns from the earthed end of the coil. But on

these wavelengths conditions vary from hour to hour, and also according to the season of the year.

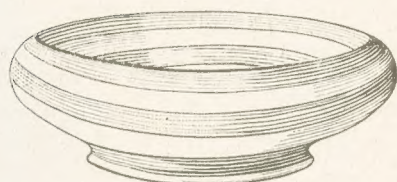
To assure that proper volume is obtained it is necessary to remember that ordinary medium or high-resistance headphones should be used, not the low-resistance types.

Higher Wave Lengths

If it is desired to tune to higher wavelengths, then the number of turns on the coil must be increased. This may be done by using a longer former, by putting the turns closer together, or by winding a loading coil of thin insulated wire, with turns closely side by side, at one end of the spaced winding. If the tuning condenser is wholly closed and some desired station has not been reached, then turns should be added.

If, on the other hand, the condenser is opened and the wavelength is still too high, then clip 1 should be moved to reduce the number of turns. The clips may be left in one position, once set, ordinary tuning being carried out by means of the condenser.

Scrap pieces of wood and two methods of making A TURNED WOODEN BOWL



Made by the first method explained

ALTHOUGH at first sight this bowl may appear beyond the scope of the amateur lathe worker, it is not as hard as it seems. There are three methods of doing the job, the method depending both upon the skill and taste of the maker and upon the material available. Throughout the whole process the work is not taken off the wooden faceplate, although the whole may be taken off the headstock, that is metal faceplate with the wooden one still screwed to it as in the sketch.

The first thing to do is to prepare a piece for the base. This must be in one piece (marked C in sketch). Shape this roughly circular before fixing to the wooden face plate, placing a piece of thick paper between it and the faceplate (see sketch). This will enable you to get the work off easily when finished. In all three methods the basepiece is in one.

The Base

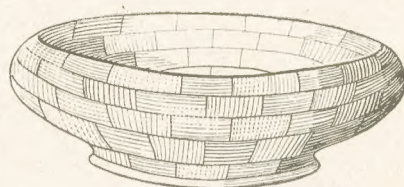
The base piece can now be turned to size and at the same time faced up ready for the fixing of the next 'course'. If method (1) is being used, the courses will be already cut and only need gluing in place, each course

is faced up before the next one is placed in position and at the same time can be roughed out to the approximate shape.

Gluing

The greatest snag with this 'course' turning is waiting for the glue to set between turning one course and setting the other. This can be speeded up by using one of the synthetic glues that will set in times varying from half an hour to ten minutes. However, the maker will not usually be in such a desperate hurry that he cannot wait a few hours. If good cake glue is used, the next course can be fixed inside of two or three hours.

With method (1) the separate courses should be of different coloured woods. It also means that definite sizes are required to make the 'rings', whereas in the other two methods, any odd pieces



A small block method of making

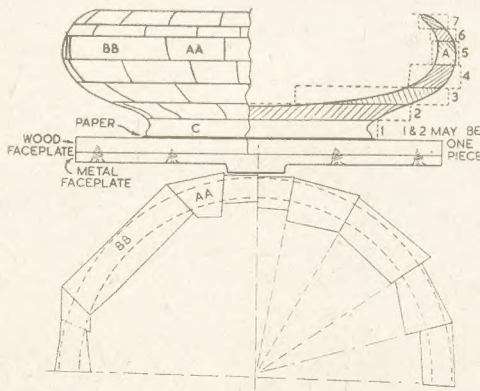
can be used. Even the courses need not be of the same colour or wood throughout.

Carry on building up the courses and facing up until the required size is reached. Now, with carefully sharpened tools, finish off the bowl inside and outside. Finally finish off with glass-paper from medium to very fine.

Polish

The author finished his with a lump of bees wax held to the work while turning. Then a very coarse piece of sacking is held against the work (still rotating) and with gradually increasing pressure, the heat generated caused by the friction will melt the wax and it will be absorbed into the wood. If the pressure is kept up for a short time it will produce an excellent polish on the surface.

When satisfied with the finish, gently ease the whole job off the wooden face plate with a wide thin chisel. Clean up the under base and glue a piece of felt on to the bottom to prevent marking polished tables, etc.



Details of construction with sections through

There is nothing really difficult in the hobby of DECORATING GLASS

MOST handicraft workers have admired the handpainting which is sometimes seen on glassware; it looks so attractive and dainty that it makes an instant appeal. Unfortunately, it also looks so very difficult that few hobbyists are bold enough to try their hand at the craft.

Surprisingly enough, in many ways it is much simpler to decorate glassware than it is to paint the illustration in a child's painting book. It is one of the few crafts where mistakes can be rectified as soon as they occur. And, possibly one of its chief attractions, it requires little in the way of equipment.

Colour and Patience

Even those folks who possess little flair for drawing or painting will find it a comparatively simple matter to turn out professional-looking work from the start. All that is needed are an eye for colour, a little patience, and the ability to apply colour within prescribed limits.

So much for the personal equipment required. The material list is no less accommodating. Your first concern must be the type of colour which you propose to use for your work. Water-colours are useless since they will not 'take' on glass. Artists' oil-paints may be employed, but only on those articles (vases, cosmetic jars, trinkets, etc.) which do not have to be washed very frequently.

Suitable Paints

If washed too often, especially in hot water with the addition of soda or a washing powder, your painted decoration will very quickly strip away from the smooth glass surface. There may actually be quite a number of craftworkers who have become thoroughly discouraged with the craft through having employed a colouring agent which was totally unsuitable for application to glass.

Fortunately, enterprising manufacturers have placed on the market certain art-colours which have been expressly produced for the purpose of providing a durable decoration on glassware. Of the several varieties on the market they may be divided into two groups: opaque and transparent. Both can be used to produce decorated articles of glassware which are the acme of daintiness.

Where to Get Them

An enquiry at any large artists' stockists or handicraft shop should assist you in your choice of colouring media. You will find that these glass-painting colours are quite inexpensive—particularly so when you remember the number of articles which can be decorated from a few tubes or jars. If you cannot obtain locally the Editor can



give you suitable addresses.

Some thought must also be given to your choice of brush for this work. You will find it a false economy to buy cheap bristle brushes. Sable or squirrel hair are best for the job. Once you have acquired good brushes take care of them. If thoroughly cleaned and dried, after use they will give lasting service.

The Glass to Use

And now a word about the glassware itself, and its preparation. Various items of glassware are in plentiful supply these days and may be obtained quite cheaply at any of our larger stores. Glass that has already been cut or moulded does not lend itself to the addition of handpainted decoration so well as do simpler articles of plain glassware. Not only does the latter offer by far the better surface for this form of craftwork; it also has the added advantage of being much less expensive.

To begin with it would, perhaps, be best if you try your hand on an old tumbler or even a jam-jar. Remember, even if you make mistakes, they can be removed immediately by means of a matchstick wrapped round with cotton-wool and dipped in a little turpentine.

What to Paint

As confidence is gained, however, the craftworker will, no doubt, begin to think in terms of producing attractive gifts or work for sale. He will possibly graduate to articles such as tumblers, wine-glasses, jugs, carafes, decanters, preserve dishes, etc., after he has served his apprenticeship on jam-jars.

The size and shape of the glass article which you propose to decorate will, obviously, be the chief deciding factor in your choice of a suitable design. At the same time, however, some thought may have to be given to the use for which the article is subsequently intended. While if the friend or relative for whom the finished work is intended has any keen favouritism so far as colour or choice of motif goes, these must also be counted as deciding factors.

Simple Subjects

Fortunately, the craft offers unlimited

scope for originality. There appears to be little limit to the type of design which it is possible to employ. Glassware intended for festive use (tumblers, liqueur and cocktail glasses, etc.) may well be given gay, sporting motifs: horses, dogs, huntsmen, dancers, figures from carnival and pantomime. Nursery rhyme characters, galleons, birds, etc., may all be used to good effect, whilst for those forms of glassware which need a more sober decoration, any form of floral pattern will stand you in good stead.

Copying Pictures

Naturally, we cannot all be such good artists that we are able to take brush in hand and execute an attractive design on glass without an outline of some sort to work from. But there is nothing to stop us cutting a suitable illustration from a magazine or a greeting card, or an embroidery pattern, and pasting this into position on the inside of our glass article.

Thus, with a clear outline to work to, it becomes a simple copying exercise to charge our brush with the correct colours and apply them to the outside of the glass immediately over the pattern beneath. When your work is complete, remove the illustration from the glass vessel and even your closest friends will be astonished by your recently acquired artistic ability.

Before commencing to apply your colours to the glass, however, you must ensure that the glass is perfectly clean and free from grease. After washing in warm, soapy water, polish with a soft cloth and a small quantity of turps or methylated spirit.

Now let us assume that you have decided to decorate a tumbler with four small bluebirds (see the right-hand tumbler in the accompanying photograph). First cut a piece of drawing-paper to shape so that it will fit neatly inside the tumbler and then trace the outline of your motif in the appropriate positions on the paper pattern. Place this developed design inside the tumbler and arrange your colours in readiness.

(Continued foot of page 55)

Prepare for comfort and safety by reading these GARDEN FURNITURE TIPS

WE shall now be getting out the deck-chairs and wicker chairs and tables to enjoy all the hours we can spare in the sunshine. Garden furniture and those odd chairs we use can all do with a little renovation and some of this work you can do in the shed or under the verandah.

Outdoor seats of the open type can be treated with a good preservative such as Solignum. If you do this now it will dry well out before you start to use the articles. Why not change the colour? You can get it in green, purple, red, dark brown and brilliant red. A shade of green will add to the charm of the garden. Be sure to use the exterior

right. Iron angle brackets will also be a good safeguard against further collapse. Hammocks, tables and adjustable chairs often develop a squeak in the joints but a little oil will put this right. Only use it where it is essential, as too much oil will overlap and risk spoiling clothes.

Wood and Wicker Chairs

Teak garden chairs will look much better when cleaned down with a solution of $\frac{1}{2}$ oz. of copper sulphate solution to a gallon of water. This cleans them and prevents damage from insects for a very long time.

Wicker can be cleaned in several ways. If a little soiled, a solution of salt and water will improve it. It is a good

plan to renovate wicker furniture which you do not want in the house for outdoor living. It is less prone to damage and the effects of the weather, and it is light to carry around. Left in its creamy white it is also quite attractive, but you can clean this and change the colour by using bright shades of enamel.

Cream and green, red and silver, green and orange, red and black are all good suggestions. Other contrasts can be made by picking out certain parts of the woven texture. Very effective is the scheme whereby the chair is painted a light yellow and allowed to dry. Over this a bright green is whisked and rubbed off partly whilst wet with a dry cloth, which gives a very original effect.

Most wicker will respond to a good soaking and wash down with the garden hose before painting. Finish off with a stout scrubbing brush to get the grease out of the crevices. Dry in the sun or you can even tie them on the clothes line to dry. This is the best way for quick drying. Gay upholstery is more than welcome for these and cretonnes are delightful.

If the children are to be out in the garden quite a lot, they will most certainly want a number of articles carted in and out. There will be books, toys, plastic china and so on. Have a look

round for one of those old tin travelling trunks with the two handles on each end. They are sold and picked up at the local second-hand shop. Clean one down and give a coat of bright green paint. Two thin ones are better than one thick, especially if the trunk may be dented. Store all the outdoor items in this.

A seat can be provided by one or two of the ex-army biscuit mattresses now advertised. Or, if you wish, a panel of wallboard can be placed on the top to form a table for meals. Fix 1in. square quartering battens at each end to hold it on.

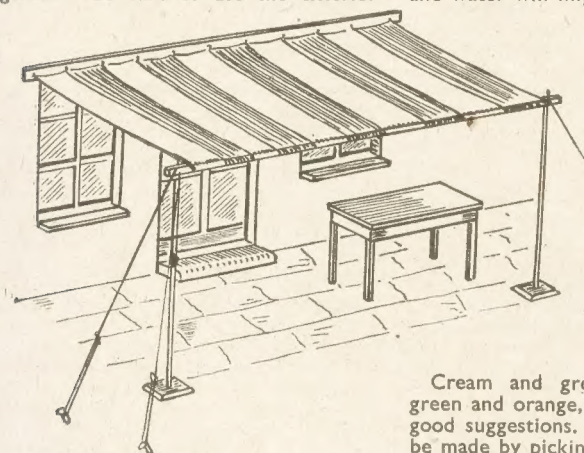
A Trolley

For large assemblies in the garden there is much work in taking the china and crocks in before and after meals. The writer made a dinner waggon with 1in. square wood on the same lines as the normal ones but, perhaps, not so well finished. To this he added the 6in. rubber-tyred wheels sold at most toy and model shops. The large wheels are necessary to cover rough ground.

We cannot all afford a tent and, perhaps, we want to keep well up to the house. A very inexpensive and practical little sun blind can be made by getting some striped deck chair canvas and making a shade about 8ft. long and 6ft. wide.

A batten is fitted to the wall with hooks and rings and placed on the canvas. A strip of wood or iron pipe can be fitted to the edge. Screw-hooks in the ends of this will fit on to two upright broom handles, which should stand on 4in. squares of wood to hold in position. Fix and maintain in place with ordinary guy ropes and adjusters.

Although it may seem early in the season to undertake these suggestions, it is surprising how soon summer will be here. Then we shall want to make use of these articles for the garden, only to find there is much repair and renovation needed. Look into the matter now therefore so you can enjoy their comfort and use later. (132)



A simple sun blind

quality. Two coats give a deeper effect than one; two will probably obliterate the original colour also, if this is what you want.

Deck Chair Attention

Deck chairs are a very expensive item and they can be made to look new with very little expense. If you do intend to replace the canvas, then remove this at the start. New canvas is in good supply now and cut to the required size. If you wish to wash the old ones, provided they are not perished, they can be laundered in the usual way.

You can also save the wear and tear by fastening the new section to the best of the old section and fitting on like a roller towel. Strain of the person on the canvas is thus halved.

Be sure to remove all old tacks. To fix, turn in one raw edge and fasten to the top bar, then draw right round the bar and down to the seat. This will give it a 'bind' on the top bar. Do the same at the bottom. The framework you will be able to paint quite easily without the canvas on. Be sure that edges are painted without leaving ridges of paint.

Rustic furniture may get rickety, but a short brace piece will soon put this



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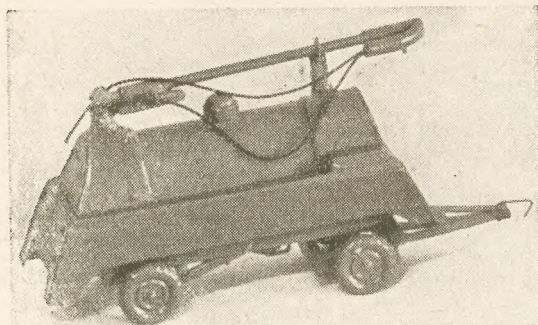
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An additional model to our miniatures is this realistic OIL BOWSER TRAILER



THE oil trailer illustrated is a sturdy little vehicle and simple to make from oddments of wood and card. Wheels are the $\frac{3}{4}$ in. solid model aircraft type. The model is intended as an addition to the others already published in this series. Patterns are full size on page 61.

The first part to make is the frame for taking the structure. Make this from $\frac{3}{8}$ in. by $\frac{1}{2}$ in. wood and $3\frac{1}{2}$ ins. long, and round the ends off as shown in Fig. 2. Two cross bearers are needed $1\frac{1}{2}$ ins. in length from $\frac{1}{2}$ in. by $\frac{1}{2}$ in. material. Along the centre is another bar at least $\frac{3}{4}$ in. wide to take the sump heads as shown in Fig. 5, and also to allow the wheels to pivot on the front axle.

Wheel Assembly

In Fig. 2 you will see the side view of the wheel lay-out. These vehicles have what is known as 'torsion' bar assemblies which can be made from $\frac{1}{8}$ in. dowel rod. Two of them are shown crossways at the sides of the top of the wheel. They go across the frame underneath. The back axle is $1\frac{1}{2}$ ins. long by $\frac{1}{2}$ in. by $\frac{3}{8}$ in.

Another bar comes from base of frame to the back axle and is $1\frac{1}{2}$ ins. long. The front unit is made to turn and is shown in Fig. 3, the long cross sections being $1\frac{1}{2}$ ins. and side cross sections $\frac{3}{4}$ in. Another piece is fitted along the centre

level and works from side to side.

The next part is a panel of $\frac{1}{2}$ in. wood 4ins. by $1\frac{1}{2}$ ins. All round this is fitted a thick cardboard covering, measuring 4ins. by $1\frac{1}{2}$ ins. Note the cut-out which should be $\frac{1}{2}$ in. at the corners and $\frac{1}{4}$ in. at the narrowest part. Cross strips of wood inside will help to keep it firm when glued. Note the dotted lines for this.

Former Sections

Now cut out three sections in $\frac{1}{2}$ in. wood measuring $1\frac{1}{2}$ ins. across and $\frac{3}{4}$ in. high and half-round in shape. Fix these as shown in Fig. 6 with strips each side to hold them straight. These are the formers for the tank casing. Make the casing with tin with sloped ends and bend this over the formers. Fix down on each side and then add a strip of wood $\frac{3}{8}$ in. wide to the top of the flat panel, thus holding the tanking down.

To finish off, add two ends to fit and two small tool boxes about $\frac{3}{8}$ in. long by $\frac{3}{8}$ in. by $\frac{1}{2}$ in. at the front (see Fig. 7). On one side you will find two round drum objects made from $\frac{3}{8}$ in. dowels and $\frac{1}{2}$ in. high. These are also shown in Fig. 7 and two more of these are also fitted to the centre cross-bar underneath the chassis framework. A double section of card $\frac{3}{8}$ in. wide at the top is added to each end (see Fig. 7).

This completes the tank itself, but a dome piece is rounded from $\frac{3}{8}$ in. dowel

and placed on top centrally. Add a $\frac{1}{2}$ in. wide cardboard strip. At the rear a piece of $\frac{3}{8}$ in. dowel $\frac{3}{8}$ in. high is fitted and neatly moulded round with plastic wood (see Fig. 8). A cross piece of $\frac{3}{8}$ in. dowel, $\frac{1}{2}$ in. wide is next pinned to this.

Pipe Feeder

You must now attach a length of $\frac{1}{2}$ in. dowel rod 4ins. long. At the top end fix a 1in. length of valve rubber, $\frac{1}{2}$ in. on the rod and the other half off; another $\frac{1}{2}$ in. piece should be fitted at the base. Also, right at base fix a piece of wood $\frac{3}{4}$ in. long by $\frac{1}{2}$ in. wide and $\frac{1}{2}$ in. thick. Into this fix a bent pin to hold the twin

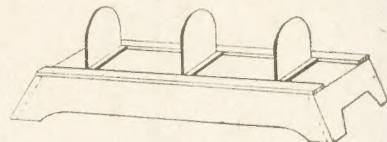


Fig. 6—Framework for tank cover

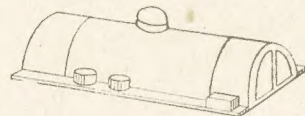


Fig. 7—Cover and ends in place



Fig. 8—The petrol pipe and wooden stand

hoses which can be made from thick thread.

All you need now is a wood support shaped as seen in Fig. 8, this being $\frac{3}{8}$ in. high and shaped and moulded with plastic wood. On this is fitted a bent pin to take the bar.

To help the builder the idea of this is to allow the oil to be pumped up to the bombers at a considerable height. The bar is sprung and balanced by the weight at base. Paint the completed model in grey or olive green.

Decorating Glass—(Continued from foot of page 53)

The underparts of the birds may be in white or yellow. Charge your brush with the desired colour and paint this part in on each of the small motifs. Now cleanse your brush and charge it with blue. Work round the tumbler, filling in the remainder of the birds.

Gaining Speed—

Clean the brush again and finish the design with a few black lines to show the eyes, wings and tail-feathers. With a little practise you will find it possible to work at such speed that the decoration of a complete set of tumblers in this manner can easily be accomplished in a spare hour or so.

Here is a word of warning, though. This is such an absorbing craft that when practising it, there is a natural tendency to hold the work too close. Avoid this as much as possible, otherwise your breath will condense on the surface of the glass and possibly prevent the film of colour from taking effectively on the article.

Or for Plastic

Glass-painting colours are equally as effective on plastic and provide an excellent medium for the decoration of nursery-ware. Since it is impossible to work from a pattern gummed on the inside of a plastic article (unless it is

made from one of the transparent materials) it will be necessary to trace the outline on the outer surface of the article with the use of carbon paper. Filling in this outline then becomes as simple as the method employed on glass.

The Best Colours

Light or bright colours are always more successful on glass. Greens should tend to be more of a yellowish hue than a bluish one. And colours such as mauve and purple should contain plenty of red. Transparent colours produce a very pleasing 'fragile' effect that enhances all floral designs. Opaque colours are ideal for animals and figures.

An interesting home carpentry job is to make this SMALL UPRIGHT TABLE

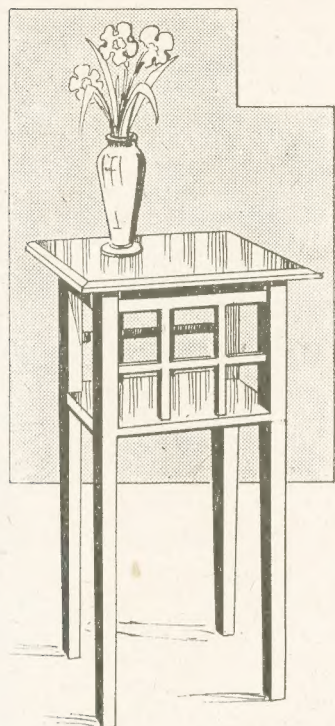


Fig. 1—A handsome little table

THE neat little hall or side table which we show in Fig. 1 should, for preference, be made of oak, but mahogany or beech or one of the other hardwoods would answer well. There are the usual tapered legs connected at the top by cross rails.

The following is a list of the material which will be required to make the table. The dimensions given are finished sizes, so allowance should be made for planing and cleaning up.

Four legs (A) 2ft. 5½ins. long, by 1½ins. square. These are tapered slightly from the foot upwards to a height of 1ft. 7½ins., that is, to the underside of the shelf, see Fig. 3. Four cross rails (B) 12ins. long by 1in. deep by ¾in. thick. Shelf (C) 12½ins. square, by ½in. thick. Two rails (D) 10½ins. long, and four 9ins. long, by ½in. square. Top (E) 18ins. square, by ¾in. thick. This top has a wide chamfer worked round its top edge to lighten its appearance and add to its effect.

Construction Details

In making the table you will be greatly helped by the details given at Figs. 2 to 7. These clearly show the method of construction, and also give the principal dimensions. Figs. 2 and 3 show two side views of the table; Fig. 4 shows the method of framing the parts together; Fig. 5 explains the

joints between the legs and the cross rails; Fig. 6 shows how the small side rails are notched or halved together; and Fig. 7 how the top is secured to the side rails by means of shaped glued blocks pressed well into the angle.

In making the table the first operation will be to plane up the legs and the cross rails, and to frame them together. The side rails are mortised and tenoned into the legs, as shown in Figs. 4 and 5, and the mortises and tenons should be set out with the marking gauge and try square or a set square.

The Joints

The tenons are level with the outer edges of the cross rails, they are ¾in. wide, and are haunched down ¾in. from the top edges to give rigidity to the finished joint. The mortises are set ¼in. in from the outer edges of the legs, and are cut to correspond with the tenons.

The mortises are cut from each side of the legs until they meet in the middle, and the ends of the tenons must be mitred to meet in the mortises, as shown in the plan at Fig. 5.

The shelf (C) should next be framed into the legs; it is notched over the legs, and is stub-tenoned into them, as shown at Fig. 4. The tenons which are formed at the ends of the shelf are ¾in. long by ¾in. wide, and care must be taken to cut these tenons so they will be in a line with the small rails which are framed between the shelf, the side rails and the legs, as given in the detail in Fig. 4. The small rails at the sides are then framed together, and let into the shelf, top rails and the legs.

Assembly

The rails are notched together, as shown at Fig. 6, this work being carefully done with the small-toothed tenon saw or even the fretsaw, and cleaned out with a ¼in. chisel. The ends of the rails

are simply let into or housed into the shelf side rails and legs.

This stage in the construction having been reached it will be a good plan to clean all the woodwork, finally test it for fit and then glue it together. It should, perhaps, have been mentioned that the legs are tapered to ¾in. square on the floor and carefully cleaned up with scraper and glasspaper.

In fixing the framework together, first fix the small rails together and well glue them. They are then fixed into the shelf and side rails, and the shelf, the cross rails and the small rails are then fixed into the legs. The joints should be secured with glue, and this should be carefully and sparingly applied to keep a clean joint. The work should be cramped up until the glue has thoroughly hardened.

Table Top

The top of the table is next prepared and fixed in position. Take care to keep an equal margin all round from the side rails. The glued blocks are seen in Fig. 7. If the top is fixed by screws, these should be well countersunk and run into the rails underneath, the heads of the screws being finally filled up level with a plastic wood filler or a paste made of glue and sawdust.

At completion, the surface must be well cleaned with coarse and fine glasspaper. The work may be french polished or stained and waxed, according to the variety of wood which has been used.

The undersides should, of course, also be treated like the rest.

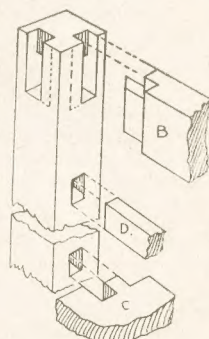


Fig. 4—Framing joints

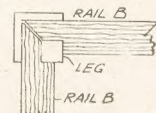


Fig. 5—Corner joints

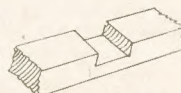


Fig. 6—Rail halving

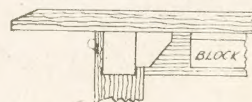
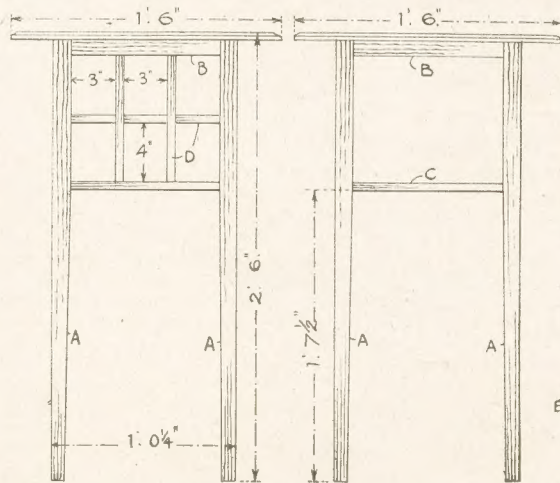


Fig. 7—Section of top fixing



Figs. 2 and 3—Side and end elevations with lettered parts mentioned

There need be little cost for stock and upkeep of THE HOME AQUARIUM

IN an earlier issue we gave particulars of how to make an aquarium—here are details how to stock it and keep it fresh at very little cost. If goldfish in the familiar glass globes could speak, what would they say? They have little room to swim, and often they are gasping at the surface trying to breathe air because the water is stale. Even when they are provided with fresh water it is straight from the tap and a lot colder than that previously in the globe, so that they are chilled.

They either eat a monotonous dried food out of a packet or have their little world filled with all kinds of unsuitable mush from their human owner's table. Altogether they would not seem to have much to be happy about.

Copy Nature

Goldfish, contrary to popular belief, will stand more ill-treatment than most other kinds of fish. If, for instance, you try to keep river or pond fish in the same conditions, they speedily die.

Yet, by carefully copying nature's methods, you can stock an aquarium with fish and plants you can collect yourself. Once you understand their needs and have satisfied them, they will give no more trouble than an unfortunate goldfish in a globe. A few minutes attention each day is enough to give you interesting pets in conditions so like their natural pond that they will live for

a long time, and be the envy of your friends.

No doubt you have seen ponds and ditches in the country in which the water, although not moving, as in a stream, is clear and fresh-looking. This, then, is the condition you want in your aquarium.

Fish and Weed

In such a natural pond, you will probably see only a few small fish, but you will see a lot of water-weed. The reason for this is that the fish and plants act together in a natural balance.

Fish breathe water, but their gills only take oxygen out of the air which has soaked into the water. They breathe out carbon dioxide and this is absorbed by the plants which in turn give off oxygen for the fish. In your aquarium, therefore, you will need water plants to make the same sort of exchange.

If you already have an aquarium, you must decide how many and how large your fish may be to keep this balance of nature. An inch of fish to a gallon of water is a useful rule. Another thing to remember is that the larger the surface area, the more air will soak into the water for your fish to use.

A Suitable Container

If you decide to make a small aquarium from instructions given in a previous issue of this magazine, ideal measurements would be 2ft. long by

1ft. by 1ft. This would allow you to put in 3ins. of materials for your plants to root in, to have 6ins. of water (with 2 sq. ft. of surface) and to allow 3ins. above water level to keep your fish from jumping out.

This aquarium would hold 1 cubic ft. of water, which is approximately 6 gallons. With its large surface area it would be ample for three 2in. fish, two 3in. or one 6in. fish to live naturally in it.

Some Necessary Plants

Having made your aquarium on these lines, you must next obtain plants for it. You may buy these, but it is quite easy to look for them yourself the next time you are in the country. Plants such as watercress and rushes which grow partly above the surface of the water are not very much good. Lilies and other plants with floating leaves should also be avoided, because they reduce the useful surface area of your water.

The ideal is to select as many different kinds of submerged water plants as you can. Rooted specimens are best, of course, but most sorts will soon produce roots if 2ins. or 3ins. of their cut ends are buried. All these may not be happy in your aquarium and they should be planted for at least a month before you put in any fish. Those that rot away may then be removed and the remainder will have rooted firmly, so the fish cannot pull them out.

A Sandy Foundation

The best planting medium for the bottom of your aquarium is river sand. Dirt from your garden may foul the water and harm the fish. Sand from the seashore, builders' sand or small gravel can be used but should be washed in several lots of hot water and given a good soaking to remove salt or anything else which may be harmful.

The most suitable water is that from a natural pool containing fish and plants. Next best is clear river water. But rain or tap water will do quite well.

The best place for an aquarium indoors is near a window which gets a little sunlight to keep your plants growing. Too much sun will make your water unhealthily warm and cause green slime (algæ) to cover glass and plants and even colour the water. Curtains or a sheet of cardboard should be provided if necessary.

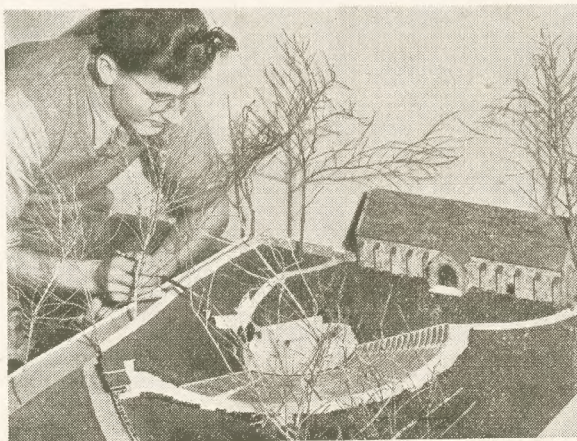
Ready for Fish

While your plants are becoming established, you must watch for any which die and also clear away single rotting leaves. Then, when all is ready, you may look for your fish.

Goldfish of the ordinary sort or of fantastic shapes and colours may be bought, but it is much more fun to catch your own. Small fish such as you

A Model Open-Air Theatre

HERE is another practical instance of co-operation in model making, such as we are always recommending. It is a model of a suggested open-air theatre which Torquay hopes to have some time. The realistic work was the result of the idea of a local architect, and carried out by his staff. The lay-out follows the suggested site in Kings Drive, with the Spanish Barn in the background. The model includes the spacious amphitheatre with seating capacity for an audience of 1,000 people.



Photo—Torquay Times

will probably need are plentiful. Those from a pond, ditch or canal are better than those from running water, for they will be used to the conditions you have made ready for them. A net on a stick—and, perhaps, a pair of wellingtons—will be sufficient equipment.

Habits to Watch

Minnows are shy and fast moving. Loach are slow and spend a lot of their time hiding under stones at the bottom of shallow streams, so that once they are disturbed, they can even be caught with the hands. Small eels can also be discovered under stones—but catch them with the net for they bite. Sticklebacks are the smallest fish of all. They are easy to catch and, perhaps, the most interesting.

Most small fish seem to lose the urge to breed in confinement, but sticklebacks caught in early spring will usually proceed to do so. There are two kinds of stickleback, the 3-spined and the 10-spined, the former the most common. Both build nests, the 3-spined on the bottom and the 10-spined in a fork of plants.

The male 3-spined stickleback is a gorgeous little fellow at mating time. Normally a drab colour, he seems to glow—so bright is his orange 'courting suit'—as he sets about building the nest with leaves and twiggy bits. If you catch a few of these little fish you will soon recognise him. The female, too, should be easy to spot, for she will be swollen with eggs.

Fighters

Not more than one male and one or two females should be put in an aquarium in spring unless it is large. Two males will fight furiously, biting and inflicting wounds on each other with their sharp spines, often to the death. Holding a mirror in front of one of these aggressive little gentlemen is enough to send him into a furious rage. He is the one who protects the eggs after they have been laid. It is a good plan even to remove the female after she has done her part.

Interesting Dwellers

Besides fish, frogs and newts are interesting aquarium dwellers. These, however, live as much on land as in water and should be provided with some kind of island. Newts are more attractive in appearance and can be found in or around many ponds in large numbers. They depend to some extent for safety on their uncanny ability to keep still.

Like frogs they grow from tadpoles, which at first have gills so they breathe water like fish, but later these disappear and they come to the surface to breathe at intervals. Unless your aquarium is very large, sticklebacks and newts should be kept separate at breeding time.

Newts eat their own eggs and also those of fish, and the stickleback, though so much smaller—will spend his time driving them away instead of

attending to his nest, his wife and his eggs as he should.

Suitable Foods

You can, if you wish, feed your fish with prepared foods from a pet shop. But, being wild creatures, they will thrive better if you are able to give them a selection of their natural foods. Cyclops and water-fleas—tiny, transparent things about the size of a pin head—are relished by all fish. They are present in most ponds. Indeed, you can sometimes see them moving like a cloud in the shallow water. A fine net will often catch hundreds at a time.

Small worms, cut up into short lengths for newts or chopped for

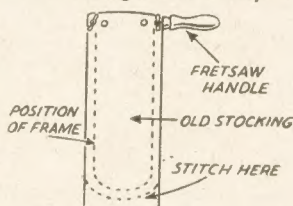
get too close to it, and you must be careful not to harm them.

If your fish should be hurt through fighting or any other cause, they are liable to get a kind of white mould growing on the wound. This can be treated by lifting the fish out of water, laying it on a wet flannel and very gently wiping the affected part with a very weak solution of water and permanganate of potash.

Such treatment should, of course, be performed as speedily as possible and the fish returned to its natural element. This condition, and the other numerous diseases which attack fish, are not likely, however, to appear at all if you start off with a balance between fish and plants,

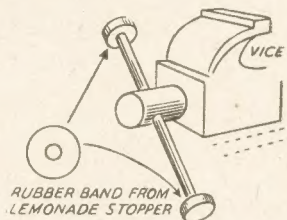
Fretframe Cover

GET an old stocking and cut and stitch it as shown. At the top, hold it together with two press studs. It is easily made and is good as it keeps a fretsaw free from rust, and clean and tidy when not in use. The diagram shows the stocking holder clearly.



Vice Handle Noise

HERE is a simple way to stop vice handle from making a noise, and for protecting the hands. All you need is two rubber bands from lemonade stoppers. Put one band at each end of vice handle as shown in diagram.



sticklebacks and other small fish, are excellent and nourishing. Small maggots and grubs and some soft-skinned water insects will also usually be devoured eagerly. Flies—small ones for small fish—can be given for variety. Some kinds of fish will also pull leaves off the plants to eat. Shop fish foods are best given only as a supplementary diet to these.

Cleanliness in your aquarium is most necessary. Dirt breeds disease anywhere, but in the little, balanced world of your fish it can be a killer. All scraps of foods which are not eaten should be taken out before they start to decay.

A glass tube—which can be bought from most chemists—will be useful here. Place a finger over one end. Put the other end into the water and near the little piece of rubbish. Take away your finger and the water will rush up into the tube, taking the rubbish with it, and you can easily lift it out.

Cleaning the Glass

No matter what you do, the sunlight will eventually make the glass sides of the aquarium green with algae. Although harmless to your fish, this will spoil your view and can best be removed with a little bundle of cloth tied on the end of a stick. A razor blade on a stick will remove any stubborn patches, but your fish, if aggressive or curious, may

feed your fish properly and spend a minute or two daily on maintenance, keeping strict cleanliness.

This, as you may imagine, is scarcely work, for you will be rewarded by having a perfect little 'pond' in your own home filled with fish which will become quite tame in time.

Some Additions

Useful additions to your aquarium are a wooden stand to enable the glass tank to be easily lifted, and a sheet of glass, raised by slips or pieces of wood, to form a dust cover above it. Dust is always present in a room and, to keep the surface of the water clear, a sheet of newspaper, cut to size, should be placed on the surface and taken off. It will take the surface film with it.

Although the water will not need to be changed, it will be necessary from time to time to 'top-up' the water level. This water should be kept near the aquarium for a few hours before use, so that there is no possibility of it chilling your fish.

Such fish as tiny sticklebacks may seem a small start, but keeping them in the way suggested here, is an interesting experience from which you can learn much. Many people who now keep and breed beautiful and valuable tropical fish started in some such small way.

Books to Read!

A review of interesting books for craftsmen which have been recently published. Obtainable through newsagents or book-sellers or direct from the publishers mentioned.

Carpentry and Joinery

by M. T. Telling

THERE is probably no greater joy than working in wood, by the craftsman who loves his job, and employs skill, enthusiasm, and imagination in undertaking it. Few other materials can offer such a diverse range of opportunity; with few other materials can beauty, and practical usefulness be combined. So many of our readers know the joy of using wood that it serves as a life long hobby and craft of pleasure. Some of our younger readers are persuaded by it to take up carpentry as a career, and add their pleasure to a remunerative background. There is much to learn and one never ceases to find new ways, means and results, no matter to what age one lives. This book is one of a technical building series and deals with the subject in such a comprehensive manner that it covers the needs of the Intermediate Examination of the London City and Guilds. And that is certainly a good standard for the beginner to endeavour to attain! Carpentry and joinery deals with the commercial side as needed by the professional artist and the elementary and very necessary instructions, illustrations and examples provide a background knowledge which would be an asset and a money-making ability on any age or sphere.

Published by Sir Isaac Pitman & Sons Ltd., Parker Street, Kingsway, London, W.C.2—Price 8/6

Woodwork and Toymaking

by Benjamin T. Richards

THE previous book dealt with the serious side of woodworking as necessary for earning a living. This one shows the pleasure of woodwork in making all kinds of toys and similar novelties. A book on this subject is frequently requested by readers, and very often for use in schools or nurseries. Here is one we can thoroughly recommend. Not only for the clear, concise and comprehensive manner of presentation, but the wide range of suggestions it offers and the complete instruction given on the subject. Whether you work alone or in a group this book tells you how to start, what tools and materials you need, and then offers dozens of suggestions of things to make and practical instruction how to make them. There are static toys, mechanical toys, wheeled toys, model toys, novelties—all reasonably simple to make, assemble and paint. Photographs show the attractiveness of the completed toy, whilst line drawings and detailed in-

structions provide all you need know how to go to work to make them for yourself—or as gifts for some little friends.

Published by G. Bell and Sons Ltd., York House, Portugal Street, London, W.C.2—Price 6/-

The Practical Electrical Reference Book

A LITTLE thought soon makes us realize how electricity is entering more and more into every phase of our modern life. What enormous strides have been made in knowledge and practical use, even in the last ten or fifteen years. The manuals on the subject published 20 years ago are hopelessly out of date. This book, however, is the most concise and helpful up-to-date reference book which can appeal to anyone seriously interested in the subject and anxious to have a thorough knowledge of its many sides. These books of Odhams Press are always wonderfully well done, and amazing value for money. In this, for instance you have 384 pages, and over 500 illustrations dealing with no less than 36 sections. The contributions are by nearly 30 authors who are recognized specialists on the technical side with which they deal. For practising or student electrical engineers the book is a veritable mine of information. Its chapters cover, apart from general subjects, such needs as electricity in mines, lifts and escalators, refrigeration, cinema equipment, electricity in agri-

culture and so on. Diagrams and tabulated details add largely to its usefulness. Published by Odhams Press Ltd., 67/68 Long Acre, London, W.C.2—Price 9/6

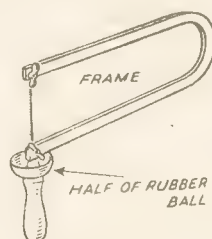
Teach Yourself Commercial Art

by H. Cutner

THESE 'Teach Yourself' Books are now extended to cover a wide range of subjects and have become popular and practical text books on matters of interest to a wide range of readers. They are of uniform size and style, with a distinctive yellow dust cover, so that a very useful reference library can be built up by collecting and keeping them for the many occasions on which they come in useful. There is, perhaps, an urge in most of us to draw, but usually a lack of knowledge of elementary rules which prevent us improving a natural aptitude. The manner in which a few lines may be drawn can make all the difference, whilst knowing light and shade, composition, production methods, etc., can produce a surprising and pleasing effect. Commercial art is entirely different in appeal and demand from 'fine' art and specializes in drawings or paintings for publicity purposes—showcards, posters, advertisements, etc. The subjects covered can be as wide as in normal art, but their presentation demands a different technique which is worth studying as much for the pleasure as the possibility of payment. The clear type printing of the book is equalled by

Dust Collector

CUT a small hollow rubber ball in half, and attach to the handle as



shown in the picture. It will collect the dust as you carry on the work. Do not have the ball too large.

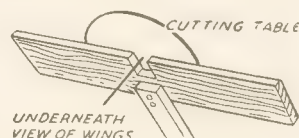
Tiny Model Masts

IN small model ships, use needles for masts. Besides being stronger than wood, the 'eyes' come in very useful when you are rigging her, for you are able to thread the cotton, or whatever

you are using, through them from one end of the boat to the other. You will, of course, have to use a smaller needle at the back than at the front.

Side Wings For 'Gem'

TO provide simple wings for large work on a machine, obtain a fairly stout board, $\frac{1}{2}$ in. by 2 ft. 6 ins. wide. Cut it as shown and then remove the block of wood that supports the cutting table.



Insert the board, putting the screws back through cutting table and board afterwards. The board will be just below level of cutting table, but pieces of $\frac{1}{8}$ in. wood may be glued to bring the board level.

MISCELLANEOUS ADVERTISEMENTS

BE Taller. Quickly! Safely! Privately! No appliances—no tablets—no dieting. Details, 6d. stamp.—Malcolm Ross, Height Specialist, BCM/HYTE, London, W.C.1.

MODELS. You can make lasting stone-hard models with Sankey's Pyrama Plastic Cement. Supplied in tins by Ironmongers, Hardwaremen and Builders' Merchants. Ask for instruction leaflet.

TRANSFERS for decorating toys, trays, furniture, fancy goods. List and samples free. Flowers, pixies, dogs, nursery rhymes.—H. Axon Harrison, Jersey.

LEARN Shorthand by May 26th (1 hour's study nightly). 1st lesson, 2½d. stamp.—Duttons (Dept. HB), 92 Gt. Russell St., London, W.C.1.

RUBBER Tyred Metal Disc Wheels finished in red, green or blue enamel. 2ins., 2/6; 3ins., 3/- per set of four. Post paid. Other sizes available up to 9ins.—The Joyden Toy Co., 193 Chase Side, London, N.14.

DOLL'S House fittings and papers; send S.A.E. for list. Doll's House plan special; send 2/6. Trade supplied.—Zimplan, 88 Ware Road, Hoddesdon.

CONSTRUCTIONAL Kits, 4mm and 7mm scale Lories. Also large range spare parts from which to build to your own design. Price lists, 1d.—Wilson's Lories Ltd., Dept. H., 1/6 Gt. Winchester Street, London, E.C.2.

100,000 Government surplus bargains for hobbyists. Perspex strip, 3ft. x 1in., 10/- per doz., post 1/4. Tool or instrument boxes, metal, 12ins. x 7ins. x 6ins., 1/6, post 9d. (many other types in stock). Sponge rubber strip, approx. 18ft. x 1½ins. x ½in., 2/-, post 9d. Aluminium rivets, handy boxes approx. 1lb. assorted, 2/6, post 6d. 20in. flexible drives, 3/6, post 9d. Hundreds of other interesting bargains. Send 3d. stamp and S.A.E. for new illustrated list.—Milligan's, 24 Harford Street, Liverpool, 3.

WHEELS for toys, and other accessories. Full lists will be sent on application to The Joyden Toy Co., 193 Chase Side, London, N.14.

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£5 to £20 weekly earned at home, running your own Mail Order business. Details, 1d.—Stebbing Publications Ltd., (HB) Naphill, High Wycombe.

HOME watch and clock repair outfit. Includes watchmaker's eyeglass, tweezers, screwdrivers, oilers, brush, oil, plus explanatory booklet fully illustrated. In container. Skill unnecessary. Invaluable for all fine work, 12/9 inclusive.—D. Bolster (Dept. A.), 5A Station Parade, Ashford, Middx.

FURNISH that Doll's House with the latest model furniture, glassware, food and accessories. List, 8d.—Sutton Models, Billericay.

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BE taller in 14 days or money back, details, 1d.—Stebbing System, 28 (HB) Dean Road, London, N.W.2.

AMERICAN Magazines post free for one year. Popular Mechanics, 32/-; Popular Science, 28/6; Mechanix Illustrated, 22/6; Popular Homecraft, 18/-. Stamp for full list of others.—Willen Ltd. (Dept. 57), 101 Fleet Street, London, E.C.4.

ENTER the Juneero National Model Making Competition. Cash and kit prizes to the value of £150. Send now for details or see the Juneero Annual, 1/-, from all Juneero Dealers, or 1/2 post free from Juneero Ltd., Boreham Wood, Herts.

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BLUSHING, shyness, nerves, self-consciousness, fears, ended. Details under plain cover, 1d.—Stebbing Treatment, 28 (HB) Dean Road, London, N.W.2.

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PERSONS required to fill vacancies in our out-work department. Write—Dept. 11, Empire Co., 117 Nottingham Road, Loughborough.

(Continued on page 62)

PRIZEWINNERS of the BRICKPLAYER COMPETITION 1950

1st PRIZE £10 : 10 : 0.

C. P. Scott, Bradfield College, Bradfield, Berks.

2nd PRIZE £5 : 5 : 0

H. P. Rang, 17 Hampstead Hill Gardens, London, N.W.3.

3rd PRIZE each £3 : 3 : 0.

P. Severn, Greenacres, Linkwood Road, Burnham, Bucks.

P. A. Allinson, 65 Anson Street, Monton, Eccles, Manchester.

Phil. Phillips, 34 Grove Way, Monks Park, Wembley, Middx.

CONSOLATION PRIZES.

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T. Squires, 10 Ludlow Avenue, Luton, Beds.
E. J. Jeffs, 11 North View, Eastcote, Pinner, Middx.
Michael Tod, Pinegrove Farm, Llanwrenarth Citra, Abergavenny, Mon.
J. C. W. Cope, Mervyn, West Road, Congleton, Cheshire.
Douglas Hannah, The Glen, Elderslie, Renfrewshire.
Graham Leeke, 8 Rockhampton Road, South Croydon, Surrey.
J. C. Simmons, c/o Miss E. M. Bynoe, 70 Strawberry Vale, Twickenham, Middx.
T. R. Bryce, Broadleeze Farm, Cricklade, Wilts.
M. J. Sample, Elvington, York.
L. J. Kottling, 196 Longlands Road, Sidcup, Kent.

Entries for the next Brickplayer Competition must be submitted between 1st January and 28th February, 1951.

Brickplayer Kits at approximately 23/10d. and 44/- and extra accessories are available from good toyshops and departmental stores.

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the excellence of the varied illustrations, examples throughout being given to elucidate further the point being made. The book covers the progressive stages of the art—from the necessary equipment, through methods, layout type faces, lettering to technique, colour work, photography, posters, etc. Even if the reader is not proposing to take up the work as a career, the book is most helpful to the amateur who likes to do local work of showcards, bills, price cards, etc.—which can be quite a profitable sideline hobby for the art craftsman.

Published by The English Universities Press Ltd., Warwick Square, London, E.C.4—Price 4/6

Leatherwork

by F. J. Christopher

ALTHOUGH only of pocket size there are packed into its 108 pages as much information and suggestions as might well have filled a much larger volume. The hobby of leatherwork is again becoming as popular as in pre-war days and once the extreme shortage of tools and materials has passed, we have no doubt it will be more enjoyed than ever. The book deals with all branches of the work, progressively and in detail, with many helpful clear drawings. The author knows his subject thoroughly and gives constructive instruction clearly and concisely, travelling from one operation to the next as the work proceeds and builds up. Commencing with simple examples, the craftsman gradually improves his work and undertakes more elaborate subjects, but all the time they are practical articles he can use for himself as on the home or as gifts to his

friends. Each chapter is provided with an index-like heading which makes a useful and easy reference to any point which may arise in the mind whilst work is in hand. This forms a very practical addition to the subjects dealt with.

Published by W. & G. Foyle Ltd., 119/125 Charing Cross Road, London, W.C.2—Price 2/6

Brumas

by Elizabeth Armistead
and Edwin Landsler

AVERY topical and delightful book of pictures of that popular little animal, the Polar Bear Cub, which was so much in the public eye recently. A variety of pictures have been published, but the authors hit on the brilliant idea of stringing them together to form a pleasing little adventure story. The photographs of the endearing little cub were specially taken and form delightful studies to young or old. The pictures are beautifully printed on art paper and the sequence story of the cub and mother at play, sleeping, going to look for father bear and finally at rest after the adventure make a human story in book form of unusual interest and pleasure. Obviously a book to give a kiddie as an excuse to enjoy it yourself!

Published by Britannicus Ltd., 3 Henrietta Street, London, W.C.2—Price 3/6.

Simple Electrical Experiments

by C. E. Page

SO many of our readers like to 'dabble' in electricity, we know they will find enormous interest in a book such as this. Its author is a contributor to the pages of Hobbies Weekly, so you

may be sure he is an expert, and able to offer suggestions of interesting things to make and do. Every experiment is easy to undertake, and no elaborate apparatus is required. There are no highly technical matters involved, so the amateur can with confidence undertake the suggestions and be delighted with the amazing and intriguing results which will be forthcoming. Having graduated through the book successfully the reader can undertake practical pieces of apparatus for use, such as a simple electric dynamo or a table microphone.

Published by Percival Marshall and Co. Ltd., 23 Great Queen Street, London, W.C.2—Price 3/-

Stamp Collecting for Boys and Girls

by L. N. & M. Williams

READERS frequently write us stating their intention of commencing the hobby of stamp collecting and asking our advice. Here is a book we could certainly recommend any of them—even if they are beyond the boy or girl age. It is a book intended for the beginner, and is essentially written in simple language, profusely illustrated with pictures, all equally well printed. Stamp collecting is too often taken up in a haphazard manner, and the mistakes and pitfalls encountered often create an early loss of enthusiasm. Those troubles are prevented by a correct procedure and knowledge—both of which are thoroughly dealt with in this recently published book.

Published by The English Universities Press Ltd., Saint Paul's House, Warwick Square, London, E.C.4—Price 5/-

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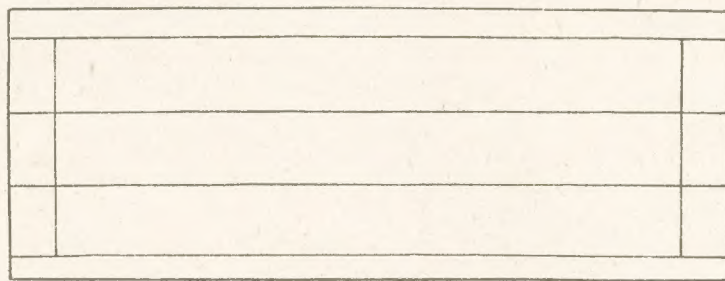


Fig. 1—Plan of main floor of chassis portion

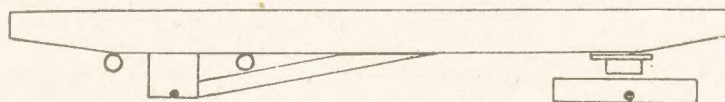


Fig. 2—Side view of chassis showing wheel holders

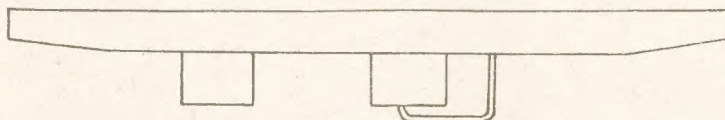


Fig. 7—Showing end view of tool boxes under chassis

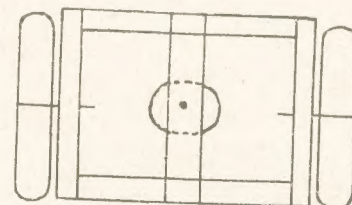


Fig. 3—Plan of front wheel suspension

See page
55

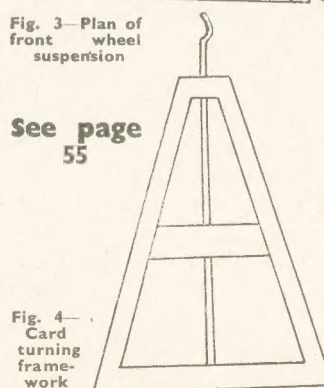
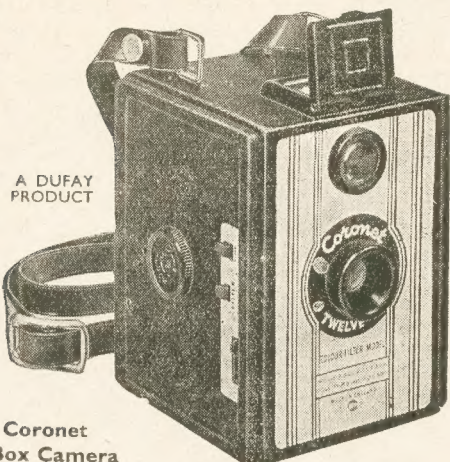


Fig. 4—Card turning frame-work

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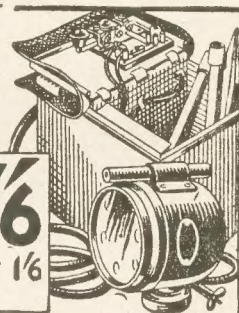
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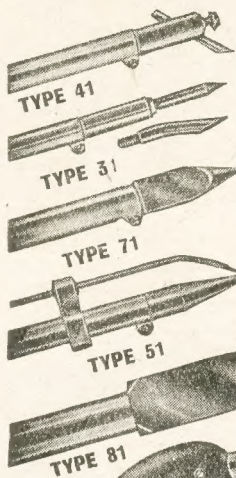
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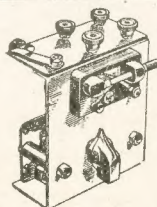
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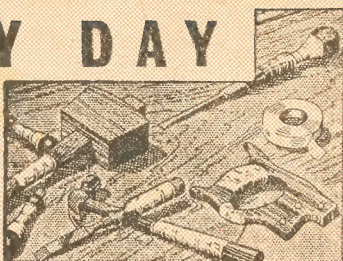
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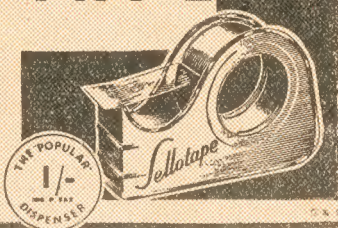
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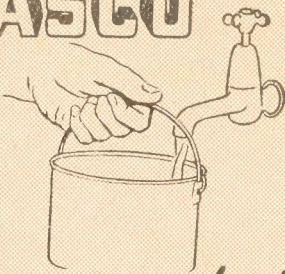
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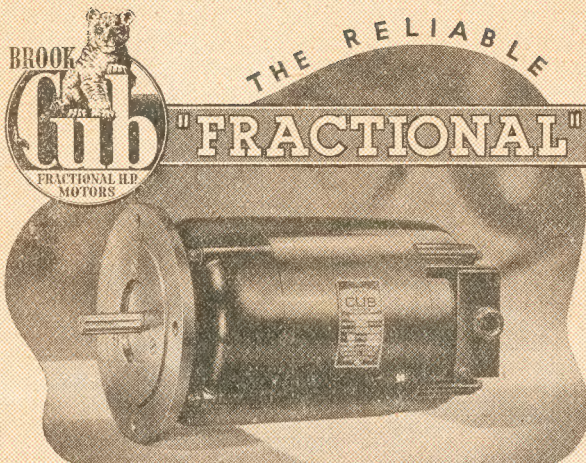


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